



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

North American Plant Breeders

Whereas, THERE HAS BEEN PRESENTED TO THE
Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS OF THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

COMMON WHEAT

'Archer'

In Testimony Whereof, I have hereunto set
my hand and caused the seal of the Plant
Variety Protection Office to be affixed
at the City of Washington
this 14th day of January in
the year of our Lord one thousand nine
hundred and eighty-two.

Attest:

Edward H. Vasey
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R. Block
Secretary of Agriculture



UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION

FORM APPROVED
OMB NO. 40-R3822

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: See Reverse.

No certificate for plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 553).

1a. TEMPORARY DESIGNATION OF VARIETY MG 201, NAPB 201 & W322-77		1b. VARIETY NAME Archer		FOR OFFICIAL USE ONLY PV NUMBER 8100144	
2. KIND NAME Hard red winter wheat		3. GENUS AND SPECIES NAME Triticum aestivum		FILING DATE 7/14/81	TIME 11:30 A.M.
4. FAMILY NAME (BOTANICAL) Gramineae		5. DATE OF DETERMINATION (1) September, 1976 (2) September, 1979		FEE RECEIVED \$ 500.00 \$ 250.00	DATE 7/14/81 10/23/81
6. NAME OF APPLICANT(S) North American Plant Breeders		7. ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 5201 Johnson Dr., P.O. Box 2955 Mission, KS 66201		8. TELEPHONE AREA CODE AND NUMBER 913-384-4940 KS 303-532-3721 CO	
9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (Corporation, partnership, association, etc.) Partnership			10. IF INCORPORATED, GIVE STATE AND DATE OF INCORPORATION Stamford, CT		11. DATE OF INCORPORATION March 1973
12. NAME AND MAILING ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS: G. E. Dixon P.O. Box 2955 Mission, KS 66201 R. E. Heiner or Chris Bruns P.O. Box 30 Berthoud, CO 80513					
13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED: <input checked="" type="checkbox"/> 13A. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.) <input checked="" type="checkbox"/> 13B. Exhibit B, Novelty Statement. <input checked="" type="checkbox"/> 13C. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.) <input checked="" type="checkbox"/> 13D. Exhibit D, Additional Description of the Variety. <input checked="" type="checkbox"/> 13E. Exhibit E, Quality Data					
14a. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(a). (If "Yes," answer 14B and 14C below.) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO					
14b. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO			14c. IF "YES," TO 14B, HOW MANY GENERATIONS OF PRODUCTION BEYOND BREEDER SEED? <input checked="" type="checkbox"/> FOUNDATION <input checked="" type="checkbox"/> REGISTERED <input checked="" type="checkbox"/> CERTIFIED		
15a. DID THE APPLICANT(S) FILE FOR PROTECTION OF THIS VARIETY IN OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (If "Yes," give name of countries and dates.)					
15b. HAVE RIGHTS BEEN GRANTED THIS VARIETY IN OTHER COUNTRIES? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO (If "Yes," give name of countries and dates.)					

16. DOES THE APPLICANT(S) AGREE TO THE PUBLICATION OF HIS/HER (THEIR) NAME(S) AND ADDRESS IN THE OFFICIAL JOURNAL? ☐ YES ☒ NO

17. The applicant(s) declare(s) that a viable sample of basic seed of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

7/2/81 (July)
(DATE)

7/6/81
(DATE)

R E Heiner
(SIGNATURE OF APPLICANT)

J. C. Nelson
(SIGNATURE OF APPLICANT)

Exhibit A

Origin and Breeding History of Archer

PEDIGREE : Sonora/Trapper//Warrior/3/Centurk

DATE OF CROSS: 1973

HISTORY : The breeding history of Archer started in 1973 with the cross of C0695461 (F₆) and Centurk. This F₁ was increased in 1974, and grown as an F₂ population in 1975. Single rows of F₃ lines were grown in 1976 at 3 locations. One of these lines was advanced into regional yield trials in 1977. At this time Archer was given an experimental number of W322-77. In 1979, 300 head rows were grown out in Berthoud, Colorado. Eleven of these rows were selected to make up the breeders seed lot grown in 1980 at Berthoud, Colorado. In 1981, 5,000 units of registered seed are expected.

These registered fields appear to be quite uniform. Less than .5% of the plants have been rogued from the fields in 1981. Approximately 85% of these rogued plants have been five to ten centimeters taller than Archer. Less than .5% of these taller types may be encountered in subsequent generations.

'Archer' is uniform and stable.

7/17/81

Exhibit B

Novelty Statement

Archer is most similar in appearance to the hard, red winter wheat 'Vona'. However, it can be distinguished from Vona on maturity and morphological characteristics.

Archer is four (4) days later heading than Vona. Based on statistical methods, this maturity difference is highly significant.

Archer is resistant to soil borne mosaic virus, while Vona is susceptible.

Archer is significantly more winter-hardy than Vona.

Archer kernels have brush hairs that are mid-long in length. Vona kernels have brush hairs that have been classified as short.

The brush size (area the brush occupies on the kernel) on Archer kernels is large. This compares to the brush size on Vona kernels which is classified as midsized.



OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*TRITICUM* spp.)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S) North American Plant Breeders	FOR OFFICIAL USE ONLY
ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code) 5201 Johnson Dr., P.O. Box 2955 Mission, KS 66201	PVPO NUMBER 8100144
	VARIETY NAME OR TEMPORARY DESIGNATION ARCHER

Place the appropriate number that describes the varietal character of this variety in the boxes below.

Place a zero in first box (e.g.

0	8	9
---	---	---

 or

0	9
---	---

) when number is either 99 or less or 9 or less.

1. KIND:

1 1 = COMMON 2 = DURUM 3 = EMMER 4 = SPELT 5 = POLISH 6 = POULARD 7 = CLUB

2. TYPE:

2 1 = SPRING 2 = WINTER 3 = OTHER (Specify) _____ 2 1 = SOFT 2 = HARD 3 = OTHER (Specify)

2 1 = WHITE 2 = RED 3 = OTHER (Specify)

3. SEASON - NUMBER OF DAYS FROM [REDACTED] TO:

planting

2	3	7
---	---	---

FIRST FLOWERING

2	4	2
---	---	---

LAST FLOWERING

4. MATURITY (50% Flowering):

-	-
---	---

 NO. OF DAYS *EARLIER* THAN

-

 1 = ARTHUR 2 = SCOUT 3 = CHRIS

0	2
---	---

 NO. OF DAYS *LATER* THAN

2

 4 = LEMHI 5 = NUGAINES 6 = LEEDS

5. PLANT HEIGHT (From soil level to top of head):

0 8 7 CM. HIGH

- - CM. TALLER THAN - 1 = ARTHUR 2 = SCOUT 3 = CHRIS

1 8 CM. SHORTER THAN 2 4 = LEMHI 5 = NUGAINE 6 = LEEDS

6. PLANT COLOR AT BOOTING (See reverse):

2 1 = YELLOW GREEN 2 = GREEN 3 = BLUE GREEN

7. ANTHOR COLOR:

1 1 = YELLOW 2 = PURPLE

8. STEM:

1	Anthocyanin: 1 = ABSENT 2 = PRESENT	2	Waxy bloom: 1 = ABSENT 2 = PRESENT
1	Hairiness of last internode of rachis: 1 = ABSENT 2 = PRESENT	1	Internodes: 1 = HOLLOW 2 = SOLID
0	4 NO. OF NODES (<i>Originating from node above ground</i>)	2	4 CM. INTERNODE LENGTH BETWEEN F AND LEAF BELOW

9. AURICLES:

1 Anthocyanin: 1 = ABSENT 2 = PRESENT 2 Hairiness: 1 = ABSENT 2 = PRESENT

10. LEAF:

1	Flag leaf at booting stage:	1 = ERECT 2 = RECURVED 3 = OTHER (Specify): _____	2	Flag leaf: 1 = NOT TWISTED 2 = TWISTED	
1	Hairs of first leaf sheath:	1 = ABSENT 2 = PRESENT	2	Waxy bloom of flag leaf sheath: 1 = ABSENT 2 = PRESENT	
1	2	MM. LEAF WIDTH (First leaf below flag leaf)	1	9	CM. LEAF LENGTH (First leaf below flag leaf):

11. HEAD:

Density: 1 = LAX 2 = DENSE 3) middense
 ave. 44 mm's

Shape: 1 = TAPERING 2 = STRAP 3 = CLAVATE
 4 = OTHER (Specify) _____

Awnedness: 1 = AWNLESS 2 = APICALLY AWNLETED 3 = AWNLETED 4 = AWNED

Color at maturity: 1 = WHITE 2 = YELLOW 3 = PINK 4 = RED
 5 = BROWN 6 = BLACK 7 = OTHER (Specify) _____

CM. LENGTH

MM. WIDTH

12. GLUMES AT MATURITY:

Length: 1 = SHORT (CA. 7 mm.) 2 = MEDIUM (CA. 8 mm.)
 3 = LONG (CA. 9 mm.)

Width: 1 = NARROW (CA. 3 mm.) 2 = MEDIUM (CA. 3.5 mm.)
 3 = WIDE (CA. 4 mm.)

Shoulder shape: 1 = WANTING 2 = OBLIQUE 3 = ROUNDED
 4 = SQUARE 5 = ELEVATED 6 = APICULATE

Beak: 1 = OBTUSE 2 = ACUTE 3 = ACUMINATE

13. COLEOPTILE COLOR:

1 = WHITE 2 = RED 3 = PURPLE

14. SEEDLING ANTHOCYANIN:

1 = ABSENT 2 = PRESENT

15. JUVENILE PLANT GROWTH HABIT:

1 = PROSTRATE 2 = SEMI-ERECT
 to erect 3 = ERECT

16. SEED:

Shape: 1 = OVATE 2 = OVAL 3 = ELLIPTICAL

Brush: 1 = SHORT 2 = MEDIUM 3 = LONG
 (0.5 to 1 mm in length)

Phenol reaction (See instructions): 1 = IVORY 2 = FAWN 3 = LT. BROWN
 4 = BROWN 5 = BLACK

Color: 1 = WHITE 2 = AMBER 3 = RED 4 = PURPLE 5 = OTHER (Specify) _____

MM. LENGTH

MM. WIDTH

GM. PER 1000 SEEDS

Cheek: 1 = ROUNDED 2 = ANGULAR

Brush: 1 = NOT COLLARED 2 = COLLARED

17. SEED CREASE:

Width: 1 = 60% OR LESS OF KERNEL 'WINOKA'
 2 = 80% OR LESS OF KERNEL 'CHRIS'
 3 = NEARLY AS WIDE AS KERNEL 'LEMHI'

Depth: 1 = 20% OR LESS OF KERNEL 'SCOUT'
 2 = 35% OR LESS OF KERNEL 'CHRIS'
 3 = 50% OR LESS OF KERNEL 'LEMHI'

18. DISEASE: (0 = Not Tested, 1 = Susceptible, 2 = Resistant) 3 = moderate resistant

STEM RUST (Races) 15 & 151

LEAF RUST (Races) field races

STRIPE RUST (Races)

LOOSE SMUT

POWDERY MILDEW

BUNT

OTHER (Specify) soil borne mosaic virus

19. INSECT: (0 = Not Tested, 1 = Susceptible, 2 = Resistant)

SAWFLY

APHID (Bydv.)

GREEN BUG

CEREAL LEAF BEETLE

OTHER (Specify) _____

HESSIAN FLY

RACES:

GP

A

B

C

D

E

F

G

20. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED:

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant tillering	Vona	Seed size	Vona
Leaf size	Vona	Seed shape	Vona
Leaf color	Vona	Coleoptile elongation	Vona
Leaf carriage	Vona	Seedling pigmentation	Vona

INSTRUCTIONS

GENERAL: The following publications may be used as a reference aid for the standardization of terms and procedures for completing this form:

- (a) L.W. Briggie and L. P. Reitz, 1963, Classification of Triticum Species and Wheat Varieties Grown in the United States, Technical Bulletin 1278, United States Department of Agriculture.
- (b) W.E. Walls, 1965, A Standardized Phenol Method for Testing Wheat Seeds for Varietal Purity, contribution No. 28 to the handbook of seed testing prepared by the Association of Official Seed Analysts. (See attachment.)

LEAF COLOR: Nickerson's or any recognized color fan should be used to determine the leaf color of the described variety.

Exhibit D

Additional Description of Archer

Archer is a hard, red winter wheat tested as W322-77 and NAPB 201. It was developed by North American Plant Breeders.

Archer is a semi-dwarf approximately 87 cm's in height. Juvenile growth habit is semi-erect to erect. Plant color at booting is green with an erect, twisted flag leaf. Auricles are hairy expressing no anthocyanin. Waxy bloom is present on both stem and flag leaf sheath. Nodes are solid and are four (4) in number.

Head shape is strap-clavate and awned. The glumes are glabrous with acuminate beaks and oblique shoulders. Head is white at maturity.

Kernels are red, ovate, and short. Seed crease is narrow and shallow with rounded cheeks. Brush is ~~mid-sized~~ ^{mid-sized} and mid-long with no collar present.

Archer is adapted to Nebraska, northern Kansas and northeastern Colorado.

Archer has been in regional yield trials since 1977.

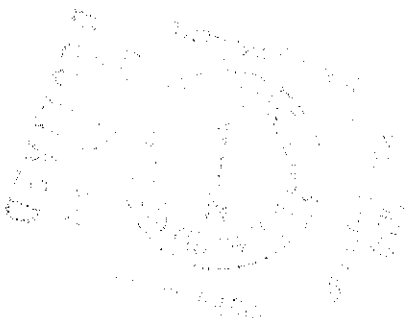


Exhibit E

Quality Comparisons of Archer with other Commercial Varieties

	<u>Wheat</u> <u>Protein</u> (%)	<u>Flour</u> <u>Protein</u> (%)	<u>Flour</u> <u>Yield</u> (%)	<u>Flour</u> <u>Ash</u> (%)	<u>Bake</u> <u>ABS</u> (%)	<u>Bake</u> <u>Mix time</u> (min.)	<u>Loaf</u> <u>Volume</u> (c.c)
Archer	12.7	11.7	68.6	0.409	62	5.0	881
Wings	12.1	11.2	69.9	0.371	61	4.7	890
Rocky	12.9	11.7	68.5	0.398	62	6.7	851
Centurk	12.8	11.7	68.2	0.396	64	5.9	893

13 stations/4 years. 1977, 1978, 1979, 1980

